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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686.860	10/16/2003	Jong-Kwon Kim	5000-1-464	1722
33942	7590	09/21/2006	EXAMINER	
CHA & REITER, LLC 210 ROUTE 4 EAST STE 103 PARAMUS, NJ 07652			TRAN, DZUNG D	
			ART UNIT	PAPER NUMBER
			2613	

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/686,860

Applicant(s)

KIM ET AL.

Examiner

Dzung D. Tran

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen US Publication no. 2003/0175030 in view of Zhao U.S. Publication no. 2004/0208580.

Regarding claim 1, Chen discloses in Figure 3, an optical add/drop multiplexer for adding or dropping a channel to an optical signal, comprising:

a wavelength-division multiplexer 34 to receive and transmit an optical signal, and

a plurality of demultiplexing ports (.g., ports of demultiplexer 32), each demultiplexing port is a path for a demultiplexed channel of the optical signal; and

a plurality of add/drop multiplexers 36, wherein respective add/drop multiplexers 36 are connected to respective demultiplexing ports.

Figure 3 of Chen does not disclose each of the add/drop multiplexers 36 having a reflector for transmitting or reflecting an input channel, wherein each add/drop

multiplexers is configured to add and/or drop a channel to/from from the wavelength-division multiplexer using the reflector.

Zhao discloses in Figure 1, an add/drop multiplexers 800 having a reflector 20 for transmitting or reflecting an input channel (for example channel λ_i), wherein each add/drop multiplexers is configured to add and/or drop a channel to/from from the wavelength-division multiplexer using the reflector.

At the time of the invention was made, one of ordinary skill in the art would have been obvious to replace the add/drop multiplexers 36 that uses opto-mechanical 2x2 switch of Figure 3 with the add/drop multiplexer that uses fiber Bragg grating (same as reflector) of Zhao in the apparatus of Figure 3 of Chen. One of ordinary skill in the art would have been motivated to do that in order to provide an add/drop multiplexer which operates independently of the wavelength by using fiber Bragg grating as the reflector.

Regarding claim 2, Chen discloses in Figure 3, wherein the wavelength-division multiplexer is connected to an optical fiber to receive an multiplexed optical signal, and has input and output ports as a path for the multiplexed optical signal.

Regarding claim 3, Zhao discloses in Figure 1, wherein each of the plurality of add/drop multiplexers has a plurality of ports for outputting an input channel to an adjacent lower port.

Regarding claim 4, Chen discloses in Figure 3, wherein the optical add/drop multiplexer is connected to an optical fiber on which the multiplexed optical signal is transmitted.

Regarding claim 5, Zhao discloses in Figure 1, wherein each of the add/drop multiplexers drops a channel by outputting the channel received through a third port connected to the wavelength-division multiplexer to a fourth port and outputting the channel received through the fourth channel to a fifth channel by the reflector, and adds a channel by outputting the channel received through a first port to a second port and outputting the channel received through the second port to a third port by the reflector.

Regarding claim 6, Zhao discloses in Figure 1, wherein each of the reflectors 20 are wavelength-independent reflectors (for example reflector 20 is reflected only wavelength λ_i).

Regarding claim 7, Chen discloses in Figure 3, an optical add/drop multiplexer for adding and/or dropping a channel to an optical signal, comprising:

- a first wavelength-division multiplexer 32 for wavelength-division demultiplexing a received optical signal and providing respective demultiplexed channels to respective demultiplexing ports, each demultiplexing port corresponding to the wavelength of the demultiplexed channel;

- a plurality of add/drop multiplexers 36, wherein respective add/drop multiplexers are connected to respective demultiplexing ports;

- a second wavelength-division multiplexer 34 for wavelength-division multiplexing a plurality of received channels, the second wavelength-division multiplexer having a plurality of demultiplexing ports, wherein respective demultiplexing ports are connected to respective add/drop multiplexers 36.

Figure 3 of Chen does not disclose each of the add/drop multiplexers 36 having first and second circulators and a reflector connected between the first and second circulators, for transmitting or reflecting an input channel and wherein each add/drop multiplexer is configured to add and/or drop a channel to/from from the wavelength-division multiplexer using the first and second circulators and reflector.

Zhao discloses in Figure 1, each of the add/drop multiplexers having first and second circulators 10, 30 respectively and a reflector 20 connected between the first and second circulators 10, 30, for transmitting or reflecting an input channel and wherein each add/drop multiplexer is configured to add and/or drop a channel to/from from the wavelength-division multiplexer using the first and second circulators 10, 30 and reflector 20.

At the time of the invention was made, one of ordinary skill in the art would have been obvious to replace the add/drop multiplexers 36 that uses opto-mechanical 2x2 switch of Figure 3 with the add/drop multiplexer of Zhao that uses fiber Bragg grating (same as reflector) in the apparatus of Figure 3 of Chen. One of ordinary skill in the art would have been motivated to do that in order to provide an add/drop multiplexer which operates independently of the wavelength by using fiber Bragg grating as the reflector.

Regarding claim 8, Chen discloses in Figure 3, wherein the first wavelength-division multiplexer 32 connected to an optical fiber to receive a multiplexed optical signal.

Regarding claim 9, Zhao discloses in Figure 1, wherein each of the plurality of add/drop multiplexers has a plurality of ports for outputting an input channel to an adjacent lower port.

Regarding claim 10, Zhao discloses in Figure 1, wherein the first circulator 10 drops a channel by outputting the channel received through a first port connected to the first wavelength-division multiplexer to a fourth port and outputting the channel received through the second channel to a third channel by the reflector 20.

Regarding claim 11, Zhao discloses in Figure 1, wherein and the second circulator 30 adds a channel by outputting the channel received through a first port to a second port and outputting the channel received through the second port to a third port connected to the second wavelength-division multiplexer by the reflector.

Regarding claim 12, Zhao discloses in Figure 1, wherein each of the reflectors are wavelength-independent reflectors (for example reflector 20 is reflected only wavelength λ_i)

Regarding claim 13, Chen discloses wherein each of the first and second wavelength-division multiplexers includes an arrayed-waveguide grating (page 1, paragraph 0004).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2613

- a. Sridhar U.S. Patent no. 5,778,118. Optical add-drop multiplexers for WDM optical communication systems
- b. So U.S. Patent no. 6,654,516. Optical system and method
- c. Doerr et al. U.S. Patent no. 6,351,581. Optical add-drop multiplexer having an interferometer structure

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (571) 272-3025. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dzung Tran
09/14/2006


DZUNG TRAN
PRIMARY PATENT EXAMINER